NRICH http://nrich.maths.org Problems Linked to the Primary National Curriculum for Mathematics in EYFS, Year 1 and Year 2

NRICH tasks embrace the aims of the curriculum (problem solving, reasoning and fluency) as well as curriculum 'content' (further information).
The stars indicate the level of confidence and competence needed to begin the activity. One star problems will be suitable for the whole class, two stars for the majority and three stars for those who like a serious challenge.

The activity listings now include what type of activity they are: games are indicated by 'G', problems by 'P' and investigations by 'I'.

N.B. This is work in progress – we would really appreciate your comments. Please email emp1001@cam.ac.uk

EYFS (40-60+ months)	Year 1	Year 2
Strand 1 - Number		
Recognises: • some numerals of personal significance • numerals 1 to 5	Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number	Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward **NRICH:** **Buzzy Bee** * P **NRICH:** **Five Steps to 50** * I
Counts: • up to three or four objects by saying a number name for each item • actions or objects which cannot be moved • objects to 10, and beginning to count beyond 10 • out up to six objects from a larger group • an irregular arrangement of up to ten objects **NRICH EYFS:** **Number Book** **NRICH EYFS:** **Playing Incey Wincey Spider** **NRICH EYFS:** **Shopping**	Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens **NRICH:** **Writing Digits** * P **NRICH:** **Shut the Box** * G **NRICH:** **Biscuit Decorations** * P **NRICH:** **Grouping Goodies** *** P **NRICH:** **Same Length Trains** * P	Recognise the place value of each digit in a two-digit number (tens, ones) **NRICH:** **Snail One Hundred** * G **NRICH:** **Two-digit Targets** * P **NRICH:** **6 Beads** ** P
Selects the correct numeral to represent 1 to 5, then 1 to 10 objects **NRICH EYFS:** **Tidying** **NRICH EYFS:** **Dice** **NRICH EYFS:** **Golden Beans**	Given a number, identify one more and one less	Identity, represent and estimate numbers using representations, including the number line **NRICH:** **How We Would Count** * G I **NRICH:** **Tug of War** * G **NRICH:** **Count the Crayons** * P

Uses the language of 'more' and 'fewer' to compare two sets of objects **NRICH EYFS: Dressing Up**	Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least **NRICH: Making Sticks** ** P I **NRICH: Robot Monsters** * I **NRICH: Dotty Six** * G **NRICH: All Change** * G I	Compare and order numbers from 0 up to 100; use <, > and = signs **NRICH: Domino Sequences** * P **NRICH: Domino Number Patterns** ** P **NRICH: Next Domino** * P **NRICH: 100 Square Jigsaw** * G **NRICH: That Number Square!** * P I
Estimates how many objects they can see and checks by counting them	Read and write numbers from 1 to 20 in numerals and words **NRICH: What's in a Name?** ** I **NRICH: Count the Digits** * I	Read and write numbers to at least 100 in numerals and in words
Says the number that is one more than a given number		Use place value and number facts to solve problems **NRICH: I Like …** * G **NRICH: Light the Lights** *** G **NRICH: Largest Even** * G P **NRICH: Round the Two Dice** * P I
Finds one more or one less from a group of up to five objects, then ten objects		
ELG Children count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number.		

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Finds the total number of items in two groups by counting all of them	Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs NRICH: **2,4,6,8** *** P NRICH: **How Do You See it?** * P NRICH: **What Could It Be?** * I	Solve problems with addition and subtraction: • using concrete objects and pictorial representations, including those involving numbers, quantities and measures • applying their increasing knowledge of mental and written methods NRICH: **Getting the Balance** *** I NRICH: **Noah** ** P NRICH: **Eggs in Baskets** ** P NRICH: **The Brown Family** *** G P NRICH: **Birthday Cakes** ** P NRICH: **Sitting Round the Party Tables** * P I NRICH: **Cuisenaire Counting** *** G P NRICH: **Two Spinners** * I NRICH: **Heads and Feet** ** P
In practical activities and discussion, beginning to use the vocabulary involved in adding and subtracting **NRICH EYFS: Number Rhymes**	Represent and use number bonds and related subtraction facts within 20 NRICH: **Domino Sorting** * I NRICH: **One Big Triangle** * G NRICH: **Ladybirds in the Garden** ** P NRICH: **Number Lines** * P NRICH: **Pairs of Numbers** * I NRICH: **Weighted Numbers** * G P NRICH: **Butterfly Flowers** * P	Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 NRICH: **Number Round Up** *** G P NRICH: **4 Dom** *** G P NRICH: **Strike it Out** * G
ELG Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer. They solve problems, including doubling, halving and sharing. **NRICH EYFS: Maths Story Time** **NRICH EYFS: Using Books**	Add and subtract one-digit and two-digit numbers to 20, including zero NRICH: **Two Dice** * I NRICH: **Find the Difference** ** G NRICH: **Sort Them Out (1)** * G	Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: • a two-digit number and ones • a two-digit number and tens • two two-digit numbers • adding three one-digit numbers NRICH: **Cuisenaire Environment** * G NRICH: **Jumping Squares** ** G NRICH: **Number Balance** ** I NRICH: **Unit Differences** * P I NRICH: **Dicey Addition** * G

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	Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ? – 9 **NRICH: [The Tall Tower](#) *** P**	Show that addition of two numbers can be done in any order (commutative), and subtraction of one number from another cannot
		Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems **NRICH: [The Add and Take-away Path](#) * I** **NRICH: [Secret Number](#) ** G** **NRICH: [How Many?](#) * G P** **NRICH: [What Was in the Box?](#) * G P** **NRICH: [Doing and Undoing](#) * I**
	Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher **NRICH: [Lots of Biscuits!](#) * P** **NRICH: [Share Bears](#) * G** **NRICH: [Doubling Fives](#) * I**	Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers **NRICH: [Odd Times Even](#) *** I** **NRICH: [Two Numbers Under the Microscope](#) ** I** **NRICH: [Even and Odd](#) * I** **NRICH: [Ring a Ring of Numbers](#) * G** **NRICH: [More Numbers in the Ring](#) *** G P** **NRICH: [How Odd](#) ** I** **NRICH: [Clapping Times](#) * G I** **NRICH: [Double or Halve?](#) * G**
		Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs **NRICH: [Ordering Cards](#) * G** **NRICH: [Which Symbol?](#) * P** **NRICH: [I'm Eight](#) * I**
		Show that multiplication of two numbers can be done in any order (commutative), and division of one number by another cannot

EYFS (40-60+ months)	Year 1	Year 2
		Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts **NRICH: [Our Numbers](#) * G** **NRICH: [Are You Well Balanced?](#) *** G I** **NRICH: [Magic Plant](#) ** P** **NRICH: [The Amazing Splitting Plant](#) *** P** **NRICH: [The Tomato and the Bean](#) *** P** **NRICH: [Lots of Lollies](#) *** P I** **NRICH: [Ip Dip](#) * I** **NRICH: [Growing Garlic](#) *** P**
	Recognise, find and name a half as one of two equal parts of an object, shape or quantity **NRICH: [Halving](#) ** I** **NRICH: [Happy Halving](#) *** P** **NRICH: [Fair Feast](#) * P**	Recognise, find, name and write fractions 1/3, ¼, 2/4 and ¾ of a length, shape, set of objects or quantity **NRICH: [Making Longer, Making Shorter](#) ** I**
	Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity	Write simple fractions e.g. ½ of 6 = 3 and recognise the equivalence of 2/4 and 1/2
EYFS (40-60+ months)	**Year 1**	**Year 2**
Strand 2 – Measurement		
Orders two or three items by length or height **NRICH EYFS: [Making Caterpillars](#)** **NRICH EYFS: [Long Creatures](#)**	Compare, describe and solve practical problems for: • lengths and heights [for example, long/short, longer/shorter, tall/short, double/half] • mass or weight [for example, heavy/light, heavier than, lighter than] • capacity/volume [for example, full/empty, more than, less than, half, half full, quarter] • time [for example, quicker, slower, earlier, later] **NRICH: [Wallpaper](#) ** P** **NRICH: [Sizing Them Up](#) * G** **NRICH: [The Animals' Sports Day](#) * I** **NRICH: [Different Sizes](#) * P I** **NRICH: [Bottles (1)](#) * P** **NRICH: [Bottles (2)](#) * P**	Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels **NRICH: [Discuss and Choose](#) * G** **NRICH: [Little Man](#) * P**

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Orders two items by weight or capacity **NRICH EYFS: Presents**	Measure and begin to record the following: • lengths and heights • mass/weight • capacity and volume • time (hours, minutes, seconds) **NRICH: How Tall?** * I **NRICH: Can You Do it Too?** ** G	Compare and order lengths, mass, volume/capacity and record the results using >, < and = **NRICH: Order, Order!** * P I **NRICH: Compare the Cups** * P
Uses everyday language related to time	Recognise and know the value of different denominations of coins and notes	Recognise and use the symbols for pounds (£) and pence (p); combine amounts to make a particular value **NRICH: Five Coins** ** P I
Orders and sequences familiar events	Sequence events in chronological order using language (for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening **NRICH: The Games' Medals** ** I **NRICH: Times of Day** * P I	Find different combinations of coins that equal the same amounts of money **NRICH: Money Bags** ** P
Measures short periods of time in simple ways	Recognise and use language relating to dates, including days of the week, weeks, months and years **NRICH: Snap** * G	Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change **NRICH: The Puzzling Sweet Shop** ** P
ELG Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. **NRICH EYFS: Timing** **NRICH EYFS: Packing** **NRICH EYFS: Balances** **NRICH EYFS: I Have a Box** **NRICH EYFS: Mud Kitchen** **NRICH EYFS: Socks** **NRICH EYFS: Cooking**	Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times	Compare and sequence intervals of time

		Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times NRICH: **What's the Time?** * P NRICH: **Stop the Clock** *** G
		Know the number of minutes in an hour and the number of hours in a day NRICH: **Matching Time** * G
EYFS (40-60+ months)	**Year 1**	**Year 2**
Strand 3 - Geometry		
Beginning to use mathematical names for 'solid' 3D shapes and 'flat' 2D shapes, and mathematical terms to describe shapes NRICH EYFS: **Shapes in the Bag**	Recognise and name common 2-D and 3-D shapes, including: • 2-D shapes (for example, rectangles (including squares), circles and triangles) • 3-D shapes (for example, cuboids (including cubes), pyramids and spheres) NRICH: **Shaping It** * I NRICH: **What's Happening?** * P NRICH: **Jig Shapes** * P NRICH: **Overlaps** ** P	Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line NRICH: **Shapely Lines** * I NRICH: **Chain of Changes** ** P NRICH: **Colouring Triangles** ** P I NRICH: **Exploded Squares** * P NRICH: **Complete the Square** *** G NRICH: **Let's Investigate Triangles** * P NRICH: **Poly Plug Rectangles** * G I NRICH: **Square It** * G NRICH: **Inside Triangles** *** G P
Selects a particular named shape		Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces NRICH: **Building with Solid Shapes** * I NRICH: **Skeleton Shapes** ** P I NRICH: **Rolling That Cube** * I
Uses familiar objects and common shapes to create and recreate patterns and build models NRICH EYFS: **Tubes and Tunnels**		Identify 2-D shapes on the surface of 3-D shapes [for example, a circle on a cylinder and a triangle on a pyramid] NRICH: **Cubes** * I NRICH: **Shadow Play** *** P

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ELG They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them. **NRICH EYFS: Making Footprints** **NRICH EYFS: Paths** **NRICH EYFS: Building Towers** **NRICH EYFS: Exploring 2D Shape** **NRICH EYFS: Wrapping Parcels** **NRICH EYFS: Baskets** **NRICH EYFS: Making a Picture** **NRICH EYFS: Collecting**		Compare and sort common 2-D and 3-D shapes and everyday objects **NRICH: Matching Triangles** * G **NRICH: Data Shapes** * P **NRICH: Cubes Cut into Four Pieces** *** P
Can describe their relative position such as '*behind*' or '*next to*' **NRICH EYFS: Queuing** **NRICH EYFS: Position with Wellies** **NRICH EYFS: Scooters, Bikes and Trikes**	Describe position, direction and movement, including whole, half, quarter and three-quarter turns **NRICH: Tangram Tangle** *** G **NRICH: Olympic Rings** ** I **NRICH: 2 Rings** * I **NRICH: Turning** * I	Order and arrange combinations of mathematical objects in patterns and sequences **NRICH: Poly Plug Pattern** * G **NRICH: Triple Cubes** * G **NRICH: A City of Towers** ** P **NRICH: Caterpillars** ** I **NRICH: Repeating Patterns** * I **NRICH: Domino Patterns** * I **NRICH: School Fair Necklaces** ** I **NRICH: Break it Up!** * I **NRICH: Hundred Square** ** P **NRICH: Three Ball Line Up** ** P
		Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise) **NRICH: Turning Man** * I **NRICH: Walking Round a Triangle** * P **NRICH: Triangle Animals** ** P **NRICH: Cover the Camel** * P
EYFS (40-60+ months)	**Year 1**	**Year 2**

Strand 4 - Statistics

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		Interpret and construct simple pictograms, tally charts, block diagrams and simple tables **NRICH: [Sticky Data](#)** * G P **NRICH: [If the World Were a Village](#)** * P I **NRICH: [Plants](#)** ** P **NRICH: [What Shape and Colour?](#)** * G **NRICH: [Carroll Diagrams](#)** * P **NRICH: [Ladybird Count](#)** * P
		Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity **NRICH: [The Hair Colour Game](#)** ** G P **NRICH: [Mixed-up Socks](#)** ** P I **NRICH: [Sort the Street](#)** * P **NRICH: [Button-up](#)** * P **NRICH: [Beads and Bags](#)** * P
		Ask and answer questions about totalling and comparing categorical data **NRICH: [In the Playground](#)** * I